FIG. 1

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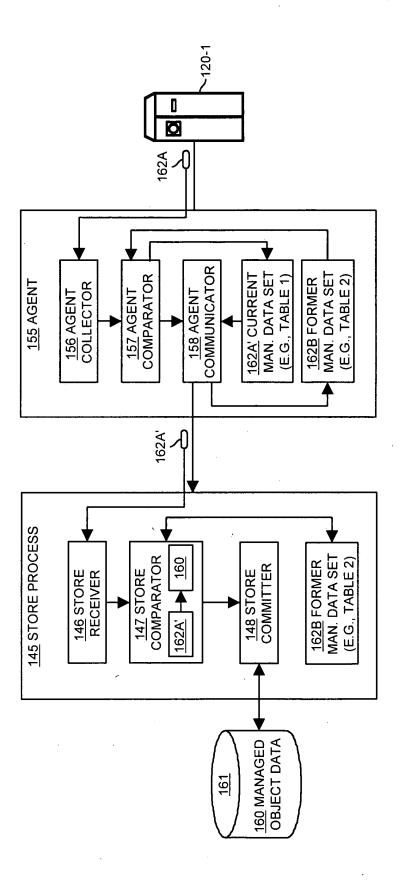


FIG. 2

COLLECT A CURRENT MANAGEMENT DATA SET FROM AT LEAST ONE MANAGED ENTITY IN A NETWORK

192

COMPARE THE CURRENT MANAGEMENT DATA SET TO A FORMER MANAGEMENT
DATA SET PREVIOUSLY COLLECTED FROM THE MANAGED ENTITY IN THE
NETWORK TO IDENTIFY DIFFERENCES IN THE CURRENT MANAGEMENT DATA SET
AS COMPARED TO THE FORMER MANAGEMENT DATA SET

193

APPEND AT LEAST ONE VERIFICATION VALUE AND AT LEAST ONE CHANGE INDICATOR TO THE CURRENT MANAGEMENT DATA SET TO ALLOW REMOTE VERIFICATION AND CHANGE IDENTIFICATION OF CONTENTS OF THE CURRENT MANAGEMENT DATA SET

194

TRANSMIT THE CURRENT MANAGEMENT DATA SET TO A REMOTE STORE PROCESS FOR STORAGE WITHIN A MANAGED ENTITY DATABASE FOR ACCESS BY A NETWORK MANAGEMENT APPLICATION

AGENT PROCESSING

FIG. 3

RECEIVE A CURRENT MANAGEMENT DATA SET CONTAINING CURRENT PORTIONS
OF MANAGEMENT DATA COLLECTED FROM AT LEAST ONE MANAGED ENTITY IN A
NETWORK, THE CURRENT MANAGEMENT DATA SET INCLUDING AT LEAST ONE
VERIFICATION VALUE AND AT LEAST ONE CHANGE INDICATOR

196

USING THE AT LEAST ONE VERIFICATION VALUE AND THE AT LEAST ONE CHANGE INDICATOR, IDENTIFY CURRENT PORTIONS OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA THAT REFLECT A CHANGE AS COMPARED TO MANAGEMENT DATA IN MANAGED OBJECTS OBTAINED FROM A FORMER MANAGEMENT DATA SET PREVIOUSLY COLLECTED FROM THE MANAGED ENTITY AND STORED WITHIN A MANAGEMENT DATABASE

197

FOR ANY CURRENT PORTIONS OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA THAT REFLECT A CHANGE IN COMPARISON TO MANAGEMENT DATA IN MANAGED OBJECTS IN THE MANAGEMENT DATABASE, MODIFY THE MANAGED OBJECT DATA IN THE MANAGEMENT DATABASE WITH PORTIONS OF MANAGEMENT DATA FROM THE CURRENT MANAGEMENT DATA SET TO REFLECT ANY IDENTIFIED DIFFERENCES FROM THE CURRENT MANAGEMENT DATA SET

STORE PROCESSING

FIG. 4



201
COMPARE THE CURRENT MANAGEMENT DATA SET TO A FORMER MANAGEMENT DATA SET
PREVIOUSLY COLLECTED FROM THE MANAGED ENTITY IN THE NETWORK TO IDENTIFY
DIFFERENCES IN THE CURRENT MANAGEMENT DATA SET AS COMPARED TO THE FORMER
MANAGEMENT DATA SET

202
CALCULATE A CURRENT VERIFICATION VALUE ON A CURRENT PORTION OF
MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA SET

203

COMPARE THE CURRENT VERIFICATION VALUE TO A FORMER VERIFICATION VALUE OF A FORMER PORTION OF MANAGEMENT DATA IN THE FORMER MANAGEMENT DATA SET THAT CORRESPONDS TO THE CURRENT DATA PORTION OF THE CURRENT MANAGEMENT DATA SET

204

DETERMINE IF THE CURRENT VERIFICATION VALUE IS NOT EQUAL TO THE FORMER VERIFICATION VALUE, AND IF SO, IDENTIFY THE CURRENT PORTION OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA SET AS CONTAINING A CHANGE IN RELATION TO THE CORRESPONDING FORMER PORTION OF MANAGEMENT DATA

205

DETERMINE IF THE CURRENT VERIFICATION VALUE IS EQUAL TO THE FORMER VERIFICATION VALUE, AND IF SO, IDENTIFYING THE FORMER VERIFICATION VALUE AS BEING CONSIDERED FOR CHANGE

206

IDENTIFYING ANY FORMER VERIFICATION VALUES THAT ARE NOT IDENTIFIED AS CONSIDERED FOR CHANGE

207

FOR EACH IDENTIFIED FORMER VERIFICATION VALUE THAT IS NOT IDENTIFIED AS CONSIDERED FOR CHANGE

208

ADD THAT FORMER VERIFICATION VALUE TO THE CURRENT MANAGEMENT DATA SET

209

ASSOCIATE A DELETION MARKER TO THAT FORMER VERIFICATION VALUE TO INDICATE
THAT A FORMER DATA PORTION IN THE FORMER MANAGEMENT DATA SET
CORRESPONDING TO THAT FORMER VERIFICATION VALUE NO LONGER EXISTS IN THE
CURRENT MANAGEMENT DATA SET

## FROM STEP 209 IN FIG. 5

APPEND AT LEAST ONE VERIFICATION VALUE TO THE CURRENT MANAGEMENT DATA SET TO ALLOW REMOTE VERIFICATION OF CONTENTS OF THE CURRENT MANAGEMENT DATA SET

CALCULATE A TOTAL VERIFICATION VALUE ON THE CURRENT MANAGEMENT DATA SET

APPEND THE TOTAL VERIFICATION VALUE ONTO THE CURRENT MANAGEMENT DATA SET

APPEND A FORMER VERIFICATION VALUE ONTO THE CURRENT MANAGEMENT DATA SET

STORE THE TOTAL VERIFICATION VALUE FOR FUTURE ACCESS AS A NEW FORMER VERIFICATION BY THE DATA COLLECTION PROCESS

215 TRANSMIT THE CURRENT MANAGEMENT DATA SET TO A REMOTE STORE PROCESS FOR STORAGE WITHIN A MANAGED ENTITY DATABASE FOR ACCESS BY A NETWORK MANAGEMENT APPLICATION

216
RECEIVE AN ACKNOWLEDGMENT FROM THE STORE PROCESS THAT ACCEPTS THE
CURRENT MANAGEMENT DATA SET AS VALID

STORE AT LEAST A PORTION OF THE CURRENT MANAGEMENT DATA SET INCLUDING VERIFICATION VALUES ASSOCIATED WITH THE CURRENT MANAGEMENT DATA SET FOR FUTURE ACCESS AS A NEW FORMER MANAGEMENT DATA SET BY THE DATA COLLECTION PROCESS

RECEIVE A CURRENT MANAGEMENT DATA SET CONTAINING CURRENT PORTIONS OF MANAGEMENT DATA COLLECTED FROM AT LEAST ONE MANAGED ENTITY IN A NETWORK, THE CURRENT MANAGEMENT DATA SET INCLUDING AT LEAST ONE VERIFICATION VALUE

301

PERFORM VERIFICATION OF PROPER RECEIPT OF THE CURRENT MANAGEMENT DATA SET BY VERIFYING A TOTAL VERIFICATION VALUE CALCULATED ON THE CURRENT MANAGEMENT DATA SET

**V**.

302
OBTAIN AN IDENTITY OF AT LEAST ONE MANAGED OBJECT ASSOCIATED WITH THE CURRENT MANAGEMENT DATA SET

303

OBTAIN AT LEAST ONE MANAGEMENT DATABASE LOCK ON MANAGED OBJECT DATA CORRESPONDING TO THE IDENTITY OF AT LEAST ONE MANAGED OBJECT ASSOCIATED WITH CURRENT MANAGEMENT DATA SET

304

USING THE AT LEAST ONE VERIFICATION VALUE, IDENTIFY CURRENT PORTIONS OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA THAT REFLECT A CHANGE AS COMPARED TO MANAGEMENT DATA IN MANAGED OBJECTS OBTAINED FROM A FORMER MANAGEMENT DATA SET PREVIOUSLY COLLECTED FROM THE MANAGED ENTITY AND STORED WITHIN A MANAGEMENT DATABASE

305

FOR ANY CURRENT PORTIONS OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA THAT REFLECT A CHANGE IN COMPARISON TO MANAGEMENT DATA IN MANAGED OBJECTS IN THE MANAGEMENT DATABASE, MODIFY THE MANAGED OBJECT DATA IN THE MANAGEMENT DATABASE WITH PORTIONS OF MANAGEMENT DATA FROM THE CURRENT MANAGEMENT DATA SET TO REFLECT ANY IDENTIFIED DIFFERENCES FROM THE CURRENT MANAGEMENT DATA SET

306

COMMIT, TO THE MANAGEMENT DATABASE, MANAGEMENT DATA ASSOCIATED WITH THE AT LEAST ONE MANAGED OBJECT FOR WHICH THE AT LEAST ONE MANAGEMENT DATABASE LOCK WAS OBTAINED

307

STORE THE AT LEAST ONE VERIFICATION VALUE OF THE CURRENT MANAGEMENT DATA SET FOR USE AS AN AT LEAST ONE FORMER VERIFICATION VALUE WHEN RECEIVING A SUBSEQUENT MANAGEMENT DATA SET COLLECTED FROM AT LEAST ONE MANAGED ENTITY IN A NETWORK

308

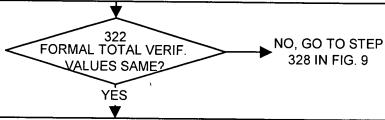
RELEASE THE AT LEAST ONE MANAGEMENT DATABASE LOCK ON MANAGED OBJECT DATA

STORAGE PROCESSING

OBTAIN, FROM THE MANAGEMENT DATABASE, A FORMER TOTAL VERIFICATION VALUE ASSOCIATED WITH FORMER MANAGEMENT DATA STORED IN THE MANAGEMENT DATABASE THAT CORRESPONDS WITH THE IDENTITY OF AT LEAST ONE MANAGED OBJECT ASSOCIATED WITH THE CURRENT MANAGEMENT DATA SET

321

COMPARE THE FORMER TOTAL VERIFICATION VALUE TO A FORMER TOTAL VERIFICATION VALUE APPENDED TO THE RECEIVED CURRENT MANAGEMENT DATA SET



323

PERFORM A CHANGE-ONLY UPDATE TO UPDATE FORMER MANAGEMENT DATA, STORED WITHIN MANAGED OBJECTS OF THE MANAGEMENT DATABASE THAT CORRESPOND TO AND THAT ARE DIFFERENT FROM CURRENT PORTIONS OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA SET, WITH THOSE CORRESPONDING AND DIFFERENT CURRENT PORTIONS OF MANAGEMENT DATA FROM THE CURRENT MANAGEMENT DATA SET

324

FOR EACH CURRENT PORTION OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA SET

325

REPLACE A FORMER PORTION OF MANAGEMENT DATA IN AT LEAST ONE MANAGED OBJECT WITH A CORRESPONDING CURRENT PORTION OF MANAGEMENT DATA THAT IS IDENTIFIED AS CONTAINING A CHANGE AND THAT HAS AN ASSOCIATED CURRENT INDEX VERIFICATION VALUE THAT MATCHES A FORMER INDEX VERIFICATION VALUE CORRESPONDING TO THE FORMER PORTION OF MANAGEMENT DATA

326

MARK FOR DELETION A FORMER PORTION OF MANAGEMENT DATA IN THE AT LEAST ONE MANAGED OBJECT WHEN THE CURRENT MANAGEMENT DATA SET CONTAINS A DELETION MARKER ASSOCIATED WITH A FORMER VERIFICATION VALUE CORRESPONDING TO THAT FORMER PORTION OF MANAGEMENT DATA

327

ADD ANY CURRENT MANAGEMENT DATA PORTIONS OF THE CURRENT MANAGEMENT DATA SET THAT ARE IDENTIFIED AS NEW CURRENT DATA PORTIONS AS MANAGEMENT DATA PORTIONS TO BE ADDED TO THE AT LEAST ONE MANAGED OBJECT

PERFORM A COMPLETE UPDATE OF MANAGEMENT DATA STORED WITHIN ALL MANAGED OBJECTS OF THE MANAGEMENT DATABASE THAT CORRESPOND TO PORTIONS OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA SET WITH THOSE CORRESPONDING PORTIONS OF MANAGEMENT DATA FROM THE CURRENT MANAGEMENT DATA SET

329

OBTAIN AT LEAST ONE MANAGED OBJECT FROM THE MANAGEMENT DATABASE THAT CORRESPONDS TO THE CURRENT MANAGEMENT DATA SET

330

IDENTIFY EACH CURRENT PORTION OF MANAGEMENT DATA IN THE CURRENT MANAGEMENT DATA SET THAT CORRESPONDS WITH A FORMER POTION OF MANAGEMENT DATA IN THE AT LEAST ONE MANAGED OBJECT OBTAINED FROM THE MANAGEMENT DATABASE

331

REPLACE THE FORMER PORTION OF MANAGEMENT DATA IN THE AT LEAST ONE MANAGED OBJECT WITH THE IDENTIFIED CORRESPONDING CURRENT PORTION OF MANAGEMENT DATA

332

INDICATE THE IDENTIFIED CORRESPONDING CURRENT PORTION OF MANAGEMENT DATA AS HAVING REPLACED A FORMER PORTION OF MANAGEMENT DATA IN THE AT LEAST ONE MANAGED OBJECT

333

INDICATE THE FORMER PORTION OF MANAGEMENT DATA IN THE AT LEAST ONE MANAGED OBJECT AS HAVING BEEN REPLACED BY THE CURRENT PORTION OF MANAGEMENT DATA

334

FOR ANY FORMER PORTIONS OF MANAGEMENT DATA OF THE AT LEAST ONE MANAGED OBJECT THAT ARE NOT INDICATED AS HAVING BEEN REPLACED BY IDENTIFIED CORRESPONDING CURRENT PORTIONS OF MANAGEMENT DATA, REMOVE THOSE FORMER PORTIONS OF MANAGEMENT DATA FROM THE AT LEAST ONE MANAGED OBJECT

335

FOR ANY CURRENT PORTIONS OF MANAGEMENT DATA THAT ARE NOT INDICATED AS HAVING REPLACED A FORMER PORTION OF MANAGEMENT DATA IN THE AT LEAST ONE MANAGED OBJECT, ADD THOSE CURRENT PORTIONS OF MANAGEMENT DATA FROM THE CURRENT MANAGEMENT DATA SET TO THE AT LEAST ONE MANAGED OBJECT

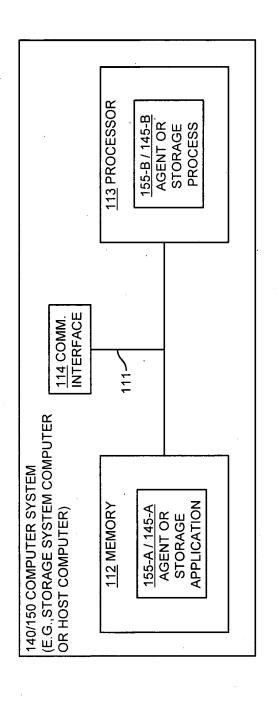


FIG 10